Figure 1


S. aureus 6390
S. pyogenes M1
S. pyogenes M6
S. pneumoniae
B P B P B P B P λ

Figure 2(a)

```
                    10                            20                            30
1    V K K T Y G Y - I G S V A A I L L A T H I G S Y Q L G K H H   Gas36.pro
1    V K K T Y G Y - I G S V A A I L L A T H I G S Y Q L G K H H   Gbs36.PRO
1    M K I N K K Y L V G S A A A L I L S - - V C S Y E L G L Y Q   Pneumo Sp36.PRO

                    40                            50                            60
30   M G S A T K D N Q I A Y I D D S K G K A K A P K T N K T M D   Gas36.pro
30   M G L A T K D N Q I A Y I D D S K G K V K A P K T N K T M D   Gbs36.PRO
29   A R T V K E N N R V S Y I D G K Q A T Q K T - - E N L T P D   Pneumo Sp36.PRO

                    70                            80                            90
60   Q I S A E E G I S A E Q I V V K I T D Q G Y V T S H G D H Y   Gas36.pro
60   Q I S A E E G I S A E Q I V V K I T D Q G Y V T S H G D H Y   Gbs36.PRO
57   E V S K R E G I N A E Q I V I K I T D Q G Y V T S H G D H Y   Pneumo Sp36.PRO

                    100                           110                           120
90   H F Y N G K V P Y D A I I S E E L L M T D P N Y R F K Q S D   Gas36.pro
90   H F Y N G K V P Y D A I I S E E L L M T D P N Y H F K Q S D   Gbs36.PRO
87   H Y Y N G K V P Y D A I I S E E L L M K D P N Y K L K D E D   Pneumo Sp36.PRO

                    130                           140                           150
120  V I N E I L D G Y V I K V N G N Y Y V Y L K P G S K R K N I   Gas36.pro
120  V I N E I L D G Y V I K V N G N Y Y V Y L K P G S K R K N I   Gbs36.PRO
117  I V N E V K G G Y V I K V D G K Y Y V Y L K D A A H A D N V   Pneumo Sp36.PRO

                    160                           170                           180
150  R T K Q Q I A E Q V A K G T K E A K E K G L A Q V A H L S K   Gas36.pro
150  R T K Q Q I A E Q V A K G T K E A K E K G L A Q V A H L S K   Gbs36.PRO
147  R T K E E I N R Q - K Q E H S Q H R E G G T P R - - - - - -   Pneumo Sp36.PRO

                    190                           200                           210
180  E E V A A V N E A K R Q G R Y T T D D G Y I F S P T D I I D   Gas36.pro
180  E E V A A V N E A K R Q G R Y T T D D G Y I F S P T D I I D   Gbs36.PRO
170  - N D G A V A L A R S Q G R Y T T D D G Y I F N A S D I I E   Pneumo Sp36.PRO

                    220                           230                           240
210  D L G D A Y L V P H G N H Y H Y I P K K D L S P S E L A A A   Gas36.pro
210  D L G D A Y L V P H G N H Y H Y I P K K D L S P S E L A A A   Gbs36.PRO
199  D T G D A Y I V P H G D H Y H Y I P K N E L S A S E L A A A   Pneumo Sp36.PRO

                    250                           260                           270
240  Q A Y W S Q K Q G R G A R P S D Y R P T P A P A P G R R K A   Gas36.pro
240  Q A Y W S Q K Q G R G A R P S D Y R P T P A - - P G R R K A   Gbs36.PRO
229  E A F L S G R - G N L S N S R T Y R R - Q N S D N T S R T N   Pneumo Sp36.PRO

                    280                           290                           300
270  P I P D V T P N P G Q G H Q P D N G G Y H P A P P R P N D A   Gas36.pro
268  P I P D V T P N P G Q G H Q P D N G G Y H P A P P R P N D A   Gbs36.PRO
257  W V P S V S - - - - - - - - - - - - - - - N P G T T N T N T S   Pneumo Sp36.PRO

                    310                           320                           330
300  S Q N K H Q R D E F K G K T F K E L L D Q L H R L D L K Y R   Gas36.pro
298  S Q N K H Q R D E F K G K T F K E L L D Q L H R L D L K Y R   Gbs36.PRO
273  N N S N T N S Q A S Q S N D I D S L L K Q L Y K L P L S Q R   Pneumo Sp36.PRO
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09845835.082500

Figure 2(b)

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                340                 350                 360
330 H V E E D G L I F E P T Q V I K S N A F G Y V V P H G D H Y  Gas36.pro
328 H V E E D G L I F E P T Q V I K S N A F G Y V V P H G D H Y  Gbs36.PRO
303 H V E S D G L V F D P A Q I T S R T A R G V A V P H G D H Y  Pneumo Sp36.PRO

                370                 380                 390
360 H I I P R S Q L S P L E M E L A D - - - - R Y L A G Q - - -  Gas36.pro
358 H I I P R S Q L S P L E M E L A D - - - - R Y L A G Q - - -  Gbs36.PRO
333 H F I P Y S Q M S E L E E R I A R I I P L R Y R S N H W V P  Pneumo Sp36.PRO

                400                 410                 420
383 T E D D D S G S D H S K P S D K E V T H T F L G H R I K A Y  Gas36.pro
381 T D D N D S G S D H S K P S D K E V T H T F L G H R I K A Y  Gbs36.PRO
363 D S R P E Q P S P Q P T P E P S P G P Q P A P N L K I D S N  Pneumo Sp36.PRO

                430                 440                 450
413 G K G L D G K P Y D T S D A Y V F S K E S I H S - V D K S G  Gas36.pro
411 G K G L D G K P Y D T S D A Y V F S K E S I H S - V D K S G  Gbs36.PRO
393 S S L V S Q L V R K V G E G Y V F E E K G I S R Y V F A K D  Pneumo Sp36.PRO

                460                 470                 480
442 V T A K H G D H F H Y - I G F G E L E Q Y E L D E V A N W V  Gas36.pro
440 V T A K H G D H F H Y - I G F G E L E Q Y E L D E V A N W V  Gbs36.PRO
423 L P S E T V K N L E S K L S K Q E S V S H T L T A K K E N V  Pneumo Sp36.PRO

                490                 500                 510
471 K A K G Q A - - D E L A A A L D Q E Q G K E K P L F D T K K  Gas36.pro
469 K A K G Q A - - D E L V A A L D Q E Q G K E K P L F D T K K  Gbs36.PRO
453 A P R D Q E F Y D K A Y N L L T E A H - - - K A L F E N K G  Pneumo Sp36.PRO

                520                 530                 540
499 V S R K V T K D G K V G Y M M P K D G K D Y F Y A R D Q L D  Gas36.pro
497 V S R K V T K D G K V G Y I M P K D G K D Y F Y A R Y Q L D  Gbs36.PRO
480 R N S D F Q A L D K L L E R L N D E S T N - - - - K E K L V  Pneumo Sp36.PRO

                550                 560                 570
529 L T Q I A F - - - - A E Q E L M L K D K K H Y R Y D I V D T  Gas36.pro
527 L T Q I A F - - - - A E Q E L M L K D K K H Y R Y D I V D T  Gbs36.PRO
506 D D L L A F L A P I T H P E R L G K P N S Q I E Y T E D E V  Pneumo Sp36.PRO

                580                 590                 600
555 G I E P R L A - - - V D V S S L P M H A G N A T Y D T G S S  Gas36.pro
553 G I E P R L A - - - V D V S S L P M H A G N A T Y D T G S S  Gbs36.PRO
536 R I - A Q L A D K Y T T S D G Y I F D E H D I I S D E G D A  Pneumo Sp36.PRO

                610                 620                 630
582 F V I P H I D H I H V V P Y S W L T - R D Q I A T I K Y V M  Gas36.pro
580 F V I P H I D H I H V V P Y S W L T - R N Q I A T I K Y V M  Gbs36.PRO
565 Y V T P H M G H S H W I G K D S L S D K E K V A A Q A Y T K  Pneumo Sp36.PRO

                640                 650                 660
611 Q H P E V R P - - - - D I W S K P G H E E S G S V I P N V T  Gas36.pro
609 Q H P E V R P - - - - D V W S K P G H E E S G S V I P N V T  Gbs36.PRO
595 E K G I L P P S P D A D V K A N P T G D S A A A I Y N R V K  Pneumo Sp36.PRO
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Figure 2(c)

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                        670                      680                      690
637  P L D K R A G M P N W Q - I I H S A E E V Q K A L A E G R F   Gas36.pro
635  P L D K R A G M P N W Q - I I H S A E E V Q K A L A E G R F   Gbs36.PRO
625  G - E K R I P L V R L P Y M V E H T V E V K N G - - - - - -   Pneumo Sp36.PRO

                        700                      710                      720
666  A T P D G Y I F D P R D V L A K E T F V W - K D G S F S I P   Gas36.pro
664  A A P D G Y I F D P R D V L A K E T F V W - K D G S F S I P   Gbs36.PRO
648  - - - - N L I I P H K D H Y H N I K F A W F D D H T Y K A P   Pneumo Sp36.PRO

                        730                      740                      750
695  R A D G S S L R T I - - - - - - - - - - - - - N K S D L S Q A E   Gas36.pro
693  R A D G S S L R T I - - - - - - - - - - - - - N K S D L S Q A E   Gbs36.PRO
674  - - N G Y T L E D L F A T I K Y Y V E H P D E R P H S N D G   Pneumo Sp36.PRO

                        760                      770                      780
714  W Q Q A Q E - L L A K K N A G D A T D T D - K P K E K Q Q A   Gas36.pro
712  W Q Q A Q E - L L A K K N A G D A T D T D - K P E E K Q Q A   Gbs36.PRO
702  W G N A S E H V L G K K D H S E D P N K N F K A D E E P V E   Pneumo Sp36.PRO

                        790                      800                      810
742  D K S N E N Q Q P - - - S E A S K E E E K E S D D F I D S L   Gas36.pro
740  D K S N E N Q Q P - - - S E A S K E E - K E S D D F I D S L   Gbs36.PRO
732  E T P A E P E V P Q V E T E K V E A Q L K E A E V L L A K V   Pneumo Sp36.PRO

                        820                      830                      840
769  P D Y G L D R A T L E D H I N Q L A Q K A N I D P K Y L I F   Gas36.pro
766  P D Y G L D R A T L E D H I N Q L A Q K A N I D P K Y L I F   Gbs36.PRO
762  T D S S L - K A N A T E T L A G L R N N L T L Q - - - - I M   Pneumo Sp36.PRO

                        850                      860                      870
799  Q P E G V Q F Y N K N G E L V T Y - - - - D I K T L Q Q I N   Gas36.pro
796  Q P E G V Q F Y N K N G E L V T Y - - - - D I K T L Q Q I N   Gbs36.PRO
787  D N N S I M - - A E A E K L L A L L K G S N P S S V S K E K   Pneumo Sp36.PRO

825  P .                                                          Gas36.pro
822  P .                                                          Gbs36.PRO
815  I N                                                          Pneumo Sp36.PRO
```

Figure 3

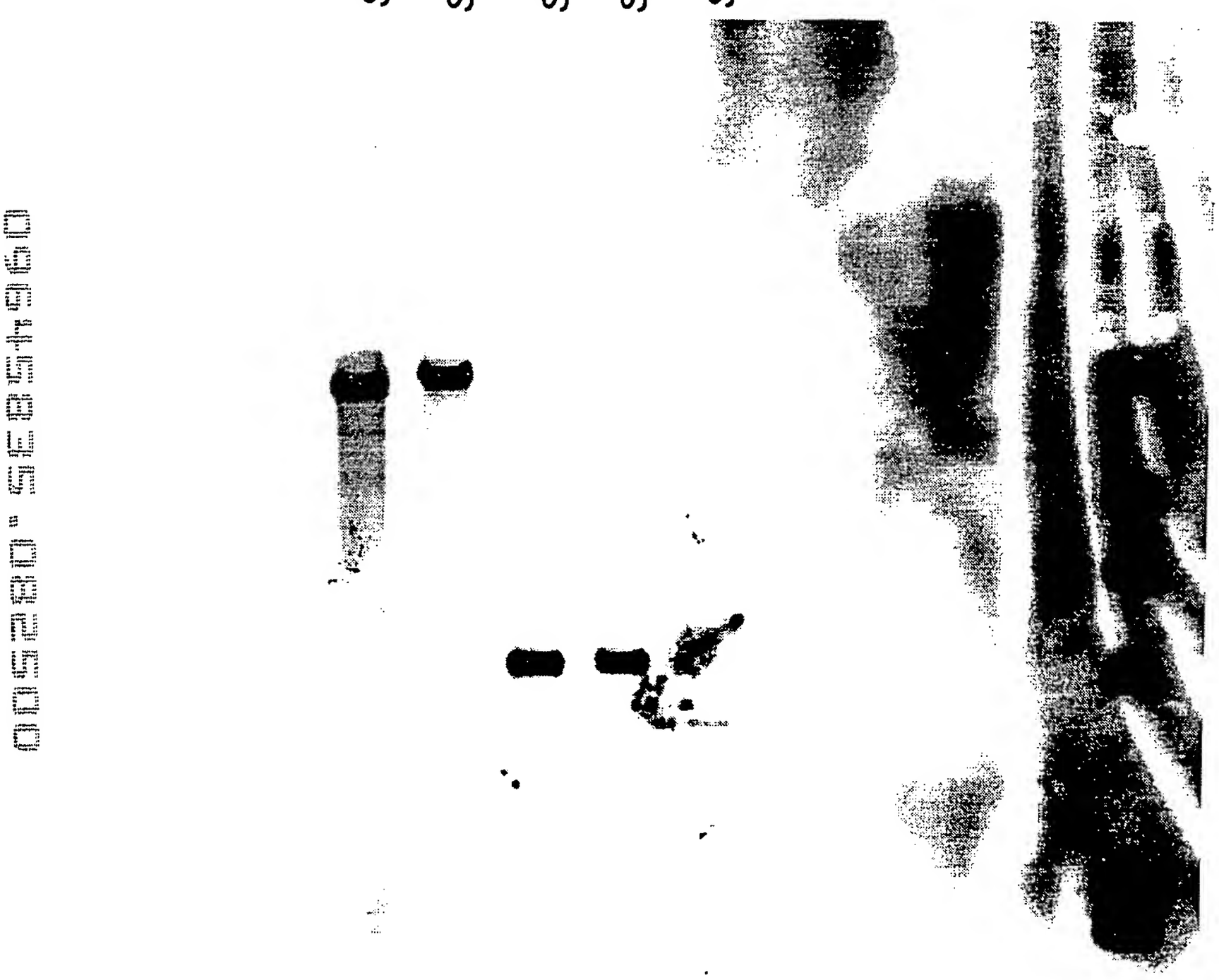
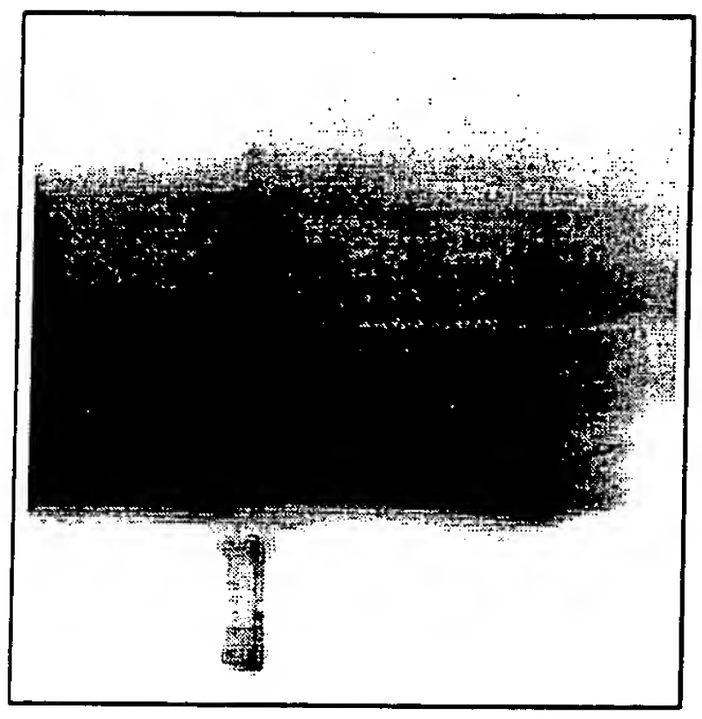

S. pyogenes M1
S. pyogenes M6
S. agalactiae 090R
S. agalactiae 13/63
S. pneumoniae
λ

Figure 4



Control

Sp36 GBS

Sp36

SJ2 6b

Figure 5

(A)

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MKKTYGYIGS VAAILLATHI GSYQLGKHHM GSATKDNQIA YIDDSKGKAK APKTNKTMDQ ISAEEGISAE  70
QIVVKITDQG YVTSHGDHYH FYNGKVPYDA IISEELLMTD PNYRFKQSDV INEILDGYVI KVNGNYYVYL 140
KPGSKRKNIR TKQQIAEQVA KGTKEAKEKG LAQVAHLSKE EVAAVNEAKR QGRYTTDDGY IFSPTDIIDD 210
LGDAYLVPHG NHYHYIPKKD LSPSELAAAQ AYWSQKQGRG ARPSDYRPTP APAPGRRKAP IPDVTPNPGQ 280
GHQPDNGGYH PAPPRPNDAS QNKHQRDEFK GKTFKELLDQ LHRLDLKYRH VEEDGLIFEP TQVIKSNAFG 350
YVVPHGDHYH IIPRSQLSPL EMELADRYLA GQTEDDDSGS DHSKPSDKEV THTFLGHRIK AYGKGLDGKP 420
YDTSDAYVFS KESIHSVDKS GVTAKHGDHF HYIGFGELEQ YELDEVANWV KAKGQADELA AALDQEQGKE 490
KPLFDTKKVS RKVTKDGKVG YMMPKDGKDY FYARDQLDLT QIAFAEQELM LKDKKHYRYD IVDTGIEPRL 560
AVDVSSLPMH AGNATYDTGS SFVIPHIDHI HVVPYSWLTR DQIATIKYVM QHPEVRPDIW SKPGHEESGS 630
VIPNVTPLDK RAGMPNWQII HSAEEVQKAL AEGRFATPDG YIFDPRDVLA KETFVWKDGS FSIPRADGSS 700
LRTINKSDLS QAEWQQAQEL LAKKNAGDAT DTDKPKEKQQ ADKSNENQQP SEASKEEEKE SDDFIDSLPD 770
YGLDRATLED HINQLAQKAN IDPKYLIFQP EGVQFYNKNG ELVTYDIKTL QQINP                  825
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DOS280 SEQSH360

Figure 5 (cont'd)

(B)

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MKTKKVIILV GLLLSSQLTL IACQSRGNGT YPIKTKQSRK GMTSNKIKPI KKSKKTNKTH KGVAGVDFPT 70
DDGFILTKDS KILSKTDQGI VVDHDGHSHF IFYADLKGSP FEYLIPKGAS LAKPAVAQRA ASQGTSKVAD 140
PHHHYEFNPA DIVAEDALGY TVRHDDHFHY ILKSSLSGQT QAQAKQVATR LPQTSSLVST ATANGIPGLH 210
FPTSDGFQFN GQGIVGVTKD SILVDHDGHL HPISFADLRQ GGWAHVADQY DPAKKAEKPA ETHQTPELSE 280
REKEYQEKLA YLAEKLGIDP STIKRVETQD GKLGLEYPHH DHAHVLMLSD IEIGKDIPDP HAIEHARELE 350
KHKVGMDTLR ALGFDEEVIL DIVRTHDAPT PFPSNEKDPN MMKEWLATVI KLDLGSRKDP LQRKGLSLLP 420
NLETLGIGFT PIKDISPVLQ FKKLKQLLMT KTGVTDYRFL DNMPQLEGID ISQNNLKDIS FLSKYKNLTL 490
VAAADNGIED IRPLGQLPNL KFLVLSNNKI SDLSPLASLH QLQELHIDNN QITDLSPVSH KESLTVVDLS 560
RNADVDLATL QAPKLETLMV NDTKVSHLDF LKNNPNLSSL SINRAQLQSL EGIEASSVIV RVEAEGNQIK 630
SLVLKDKQGS LTFLDVTGNQ LTSLEGVNNF TALDILSVSK NQLTNVNLSK PNKTVTNIDI SHNNISLADL 700
KLNEQHIPEA IAKNFPAVYE GSMVGNGTAE EKAAMATKAK ESAQEASESH DYNHNHTYED EEGHAHEHRD 770
KDDHDHEHED ENEAKDEQNH AD                                                    792
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005280"SE85h960

Figure 5 (cont'd)

(C)

MKKTYGYIGS VAAILLATHI GSYQLGKHHM GLATKDNQIA YIDDSKGKVK APKTNKTMDQ ISAEEGISAE 70
QIVVKITDQG YVTSHGDHYH FYNGKVPYDA IISEELLMTD PNYHFKQSDV INEILDGYVI KVNGNYYVYL 140
KPGSKRKNIR TKQQIAEQVA KGTKEAKEKG LAQVAHLSKE EVAAVNEAKR QGRYTTDDGY IFSPTDIIDD 210
LGDAYLVPHG NHYHYIPKKD LSPSELAAAQ AYWSQKQGRG ARPSDYRPTP APGRRKAPIP DVTPNPGQGH 280
QPDNGGYHPA PPRPNDASQN KHQRDEFKGK TFKELLDQLH RLDLKYRHVE EDGLIFEPTQ VIKSNAFGYV 350
VPHGDHYHII PRSQLSPLEM ELADRYLAGQ TDDNDSGSDH SKPSDKEVTH TFLGHRIKAY GKGLDGKPYD 420
TSDAYVFSKE SIHSVDKSGV TAKHGDHFHY IGFGELEQYE LDEVANWVKA KGQADELVAA LDQEQGKEKP 490
LFDTKKVSRK VTKDGKVGYI MPKDGKDYFY ARYQLDLTQI AFAEQELMLK DKKHYRYDIV DTGIEPRLAV 560
DVSSLPMHAG NATYDTGSSF VIPHIDHIHV VPYSWLTRNQ IATIKYVMQH PEVRPDVWSK PGHEESGSVI 630
PNVTPLDKRA GMPNWQIIHS AEEVQKALAE GRFAAPDGYI FDPRDVLAKE TFVWKDGSFS IPRADGSSLR 700
TINKSDLSQA EWQQAQELLA KKNAGDATDT DKPEEKQQAD KSNENQQPSE ASKEEKESDD FIDSLPDYGL 770
DRATLEDHIN QLAQKANIDP KYLIFQPEGV QFYNKNGELV TYDIKTLQQI NP 822